

What is claimed is:

1. A radio-frequency receiver comprising:
a mixer for mixing a received radio-frequency signal with a local signal to convert the radio-frequency signal into an intermediate-frequency signal or baseband signal;
a local signal generator;
a level switcher for switching an output signal level of the local signal generator; and
a controller for controlling the level switcher according to a frequency of the received signal.

2. A radio-frequency receiver as claimed in claim 1,
wherein the local signal generator comprises a voltage-controlled oscillator and a frequency multiplier circuit for multiplying a frequency of an output signal of the voltage-controlled oscillator.

3. A radio-frequency receiver as claimed in claim 2,
wherein the local signal generator includes a phase-locked loop circuit for controlling an oscillation frequency of the voltage-controlled oscillator, and the controller controls the voltage-controlled oscillator through the phase-locked loop circuit by using a control signal, and also controls the level switcher by using another control signal corresponding to the control signal.

4. A radio-frequency receiver as claimed in claim 1,
wherein the level switcher comprises a regulator and a switch for varying an output voltage of the regulator, and varies a gain of the frequency multiplier circuit by using the

output voltage of the regulator.

5. A radio-frequency receiver as claimed in claim 1,
wherein the radio-frequency receiver is for receiving digital satellite broadcast.

6. A radio-frequency receiver as claimed in claim 1,
wherein the local signal generator comprises a plurality of VCOs and a VCO switcher
for switching among the VCOs so that one of the VCOs is selected and connected to the
frequency multiplier circuit at a time.

7. A radio-frequency receiver as claimed in claim 6,
wherein the controller controls both the level switcher and the VCO switcher
according to the frequency of the received signal